Amy Cooke

Assistant Professor of Biology, Haverford College 370 Lancaster Avenue Haverford, PA 19041 USA
Email: acooke1@haverford.edu

EDUCATION

University of Wisconsin-Madison, Madison, WI USA 2005-2011
Ph.D. degree in Cellular & Molecular Biology

University of Oregon-Eugene, Eugene, OR USA 2000-2003
Bachelor of Science degree in Biochemistry

Montana State University-Billings, Billings, MT USA 1998-1999
Bachelor of Science degree in Biochemistry

POSITIONS/RESEARCH EXPERIENCE

Assistant Professor of Biology 2020-present
Haverford College, Haverford, PA USA
Biology Department
Biochemistry and genomic research on post-transcriptional control mechanisms that govern cellular physiological events, and teaching a broad range of Biology classes for both majors and non-majors.

Senior Scientist, Lab of Marvin Wickens, Ph.D. 2018-2020
University of Wisconsin-Madison, Madison, WI USA
Biochemistry Department
Expand techniques to globally identify RNA-protein interactions and RNA dynamics within live cells using engineered proteins. Additionally, direct supervisor of research interns and mentor for graduate students.

Postdoctoral Fellow, Lab of Matthias Hentze, M.D. 2011-2017
European Molecular Biology Laboratory, Heidelberg, Germany
Director's Research affiliated with Genome Biology
Utilized system-wide approaches to define genes directly regulated by the RNA-binding protein, YBX3 and uncovered an unanticipated role for YBX3 regulation of amino acid homeostasis in mammalian cells.

Graduate Student, Lab of Marvin Wickens, Ph.D. 2005-2011
University of Wisconsin-Madison, Madison, WI USA
Biochemistry Department
Molecular Biosciences Training Grant (2005-2007)
Advanced Opportunity Fellowship (2007-2009)
Discovered intrinsic translational repression activity in CAF1 deadenylases, developed methods to regulate cellular mRNAs using designer proteins and characterized how an RNA-binding protein spatial controls mRNAs.

Research Associate, Lab of Alice Barkan, Ph.D. 2003-2005

University of Oregon-Eugene, Eugene, OR USA
Institute of Molecular Biology
Continued studies on the crosstalk between the chloroplast and nucleus to understand the role of nuclear encoded proteins in splicing chloroplast encoded group II introns.

Undergraduate Student, Lab of Alice Barkan, Ph.D. 2000-2003
University of Oregon-Eugene, Eugene, OR USA
Institute of Molecular Biology
Women in Physical Sciences Fellow (2002-2003)
Studied the crosstalk between the chloroplast and nucleus to understand the role of nuclear encoded proteins in splicing chloroplast encoded group II introns.

GRANTS AUTHORED IN SUPPORT OF RESEARCH

2022 Faculty Research and Travel Fund; "Development of an inducible tethered function assay to assess RNA-binding protein function" Conference travel funds for the RNA Society Meeting 2022; **$2060**

2022 PI; R15 AREA Research Grant; "Post-transcriptional regulation by the YBX3 RNA-binding protein in skeletal muscle" Awarded April 2022-March 2025; **$421,196,**

2021 PI; Faculty Research Grant; "Investigating protein interactions that have consequences for disease"; **$5500**

PUBLICATIONS

^ Indicates a co-first author. * Indicates undergraduate student

1. Awad S^*, Skipper W^*, Vostrejs W^*, Ozorowski K*, Min K*,Pfuhler L*, Mehta D*, and **Cooke A**. The YBX3 RNA-binding protein post-transcriptionally controls *SLC1A5* mRNA during skeletal muscle differentiation. **Submitted to JBC 07/27/2023.**
2. **Cooke A**, Schwarzl T, Huppertz I, Mantas P, Alleume AM Huber W, Krijgsveld J, and Hentze MW. (2019) The RNA-binding protein YBX3 controls amino acid levels by regulating SLC mRNA abundance. *Cell Rep.* 27(11), 3097-3106.

3. Holzer K, Ori A, **Cooke A**, Roessler S, DiGuilio AL, Drucker E, Andres-Pons A, Eiteneuer E, Breuhahn K, Glavy JS, Schirmacher P, Beck M, Singer S. (2019) Translational control by and repression of Nup155 are integral parts of the p53 pathway in liver cancer. *Nat Commun*. 10, 2147

4. Zhang Y*, **Cooke A***, Wickens M, Sheets MD. (2013) Bicaudal-C spatially controls translation of vertebrate maternal mRNAs. *RNA* 19, 1575-82.

5. Friend K, Campbell ZT, **Cooke A**, Kroll-Conner P, Wickens M and Kimble J. (2012) A conserved PUF/Ago/eEF1A ternary complex attenuates translation elongation. *NSMB* 19, 176-83. *Faculty of 1000: https://f1000.com/prime/13491994*

6. **Cooke A^**, Prigge A^*, Opperman L, Wickens M. (2011) Targeted translational regulation using the PUF scaffold. *PNAS* 108, 15870-15875.
   Faculty of 1000: https://f1000.com/prime/13302956
7. **Cooke A**, Prigge A*, Wickens M. (2010) Translational repression by deadenylases. *J Biol Chem.* 285, 28506-13.

8. Watkins KP^, Kroeger TS^, **Cooke A^*** , Williams-Carrier RE, Friso G, Belcher SE, van Wijk KJ, Barkan A. (2007) A ribonuclease III domain protein functions in group II intron splicing in maize chloroplasts. *Plant Cell* 19, 2606-23.

9. Ostersetzer O, **Cooke A***, Watkins KP, Barkan A. (2005), Crs1, a chloroplast group II intron splicing factor, promotes intron folding through specific interactions with two intron domains. *Plant Cell* 17, 241255.

HONORS

Molecular Biosciences Training Grant	2005-2007
Advanced Opportunity Fellowship	2007-2009
Honorable mention for NSF Graduate Research Fellowship Program	2005
Biochemistry Achievement Award from the University of Oregon	2003
Women in Physical Sciences Scholarship	2002-2003

TEACHING AND MENTORING

Teaching

Haverford College, Haverford, PA USA

BIOL201: Introduction to Biology; Molecules, Cells and Organisms (Spring 2021 & Spring 2023)
BIOL201 Laboratory: Introduction to Biology; Molecules, Cells and Organisms (Spring 2022)
BIOL300: Advanced lab in Biology "Superlab" (Fall 2020; Fall 2021, Fall 2022)
BIOL334: Biochemistry of Gene Expression (Fall 2021)
BIOL380: Independent Study in Biology at Haverford (1 student Spring 2021; 2 students Fall 2022; 5 students Spring 2022)
BIOL417: Senior Research Tutorial in Molecular Genomics/Biochemistry (4 students 2020 – 2021; 6 students 2021-2022; 6 students 2022 – 2023, 1 student 2023 – 2024)
BIOL495: Crafting an Inclusive Biology Curriculum: Student Research, Mentorship and Communication (Fall 2020)

European Molecular Biology Laboratory, Heidelberg Germany

Graduate student practical instructor for the RNA & DNA Biology Module (2012-2017)

Mentoring

Current Senior Thesis Mentees

Silina Awad HC '24

2023 Summer Student Mentees

Silina Awad HC '24

2022 Summer Student Mentees

Justin Adler HC '24
Silina Awad HC '24
Kristen Min HC '23
Kendall Ozowrski HC '22 (Fall)
Nate Rose HC '23

2021 Summer Student Mentees

Justin Adler HC '24
Silina Awad HC '24
Max Elliot HC '22
Isabella Johnson HC '22

Former Senior Thesis Mentees

Amalia Axinn HC '21 (Ambler Scholar and High Honors in Biology)

Zachary Bressman HC ‘21 (Honors in Biology)
Max Elliot HC ‘22
Megan Heflinger HC ’23 (Ambler Scholar and Koshland Prize in Biology recipient)
Jaclyn Holtby HC ‘23
Jeremy Lavietes HC ‘22
Isabella Johnson HC ‘22
Kristen Min HC ‘23
Kendall Ozowrski HC ’22 (Fall) (Ambler Scholar)
Liva Phfuler BMC ‘23
Nate Rose HC ’23 (Ambler Awardee and Lowey Prize in Biology recipient
William Skipper HC ‘22
William Vostrejs HC ‘22
Charith Wijeyesekera HC ‘21 (Irving Finger Prize in Biology recipient)
Alice Youle HC ‘21 (Irving Finger Prize in Biology recipient)

Current Research Associate/postbaccalaureate 2022-present
William Skipper HC ‘22

Research Intern 2019-2020
Alexandra J Kershner, B.S.
Project: Expanding RNA-tagging techniques to characterize protein-RNA complexes.

Visiting Doctoral student summer 2015
Marcelo Perez-Pepe (Leloir Institute Foundation)
Project: Charactering the role of enzymes in translational control mechanisms.

Undergraduate student 2007-2010
Andrew Prigge
Project: Developing an improved tool to dissect developmental processes.

PROFESSIONAL SERVICES AND AFFILIATIONS

Reviewer for the following peer reviewed journals: *FEBS Letter*, *Bioscience Reports*, *Biomolecules*
Poster Judge at American Indian Science and Engineering Society (AISES) National Conference (2020)
Member of Society for Advancement of Chicanos and Native Americans in Science (SACNAS) University of Wisconsin Chapter (2018-2020)
Member of RNA Society (2007 – present)

SELECTED PRESENTATIONS

**** Indicates undergraduate student presentation***

Special Group Meeting, at the University of Minnesota, Minneapolis, MN; invited speaker 2023
“YBX3 regulates SLC1A5 mRNA levels during skeletal muscle differentiation.”

RNA PUI Salon, virtual seminar for RNA Society Salon of researchers at primarily undergraduate institutions. 2023
“Post-transcriptional control in skeletal muscles.”

Bridges to Baccalaureate Program, virtual seminar for Cuyahoga Community College and Case Western Reserve University. 2022
“*Characterizing post-transcriptional control mechanisms in biology.”*

RNA Society Meeting (2022), at the University of Colorado, Boulder, CO; *****2 poster presentations 2022
“YBX3 post-transcriptional control during skeletal muscle differentiation”

"Development of an inducible tethered function assay to assess RNA-binding protein function"

Special Group Meeting, at the University of Minnesota, Minneapolis, MN; invited speaker 2022
"YBX3 post-transcriptional control: molecular mechanisms and physiological relevance"

RNA Supergroup Seminar, at the University of Minnesota, Minneapolis, MN; invited speaker 2019
"Linking RBP regulation and physiology: a multiomics approach"

European Molecular Biology Laboratory "Lab Day", plenary talk 2016
"Novel role of the RNA-binding protein YBX3 in amino acid transport"

20th Annual RNA Society Meeting, workshop talk 2015
"Identification of TOP mRNA translational regulators by site-selective UV crosslinking"

Translational Control Meeting, Cold Spring Harbor, NY 2010
"CAF1 deadenylases repress translation independent of deadenylation"

National Maize Meeting, Lake Genève, WI 2005
"*Involvement of an RNAse III Homolog in Group II Intron Metabolism in Chloroplasts"*